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A. I. A. File Number 4i  
Textured Concrete—Con-Tex

# Producing Texture and Color in Concrete



Concrete Surface Corporation  
342 Madison Avenue  
New York

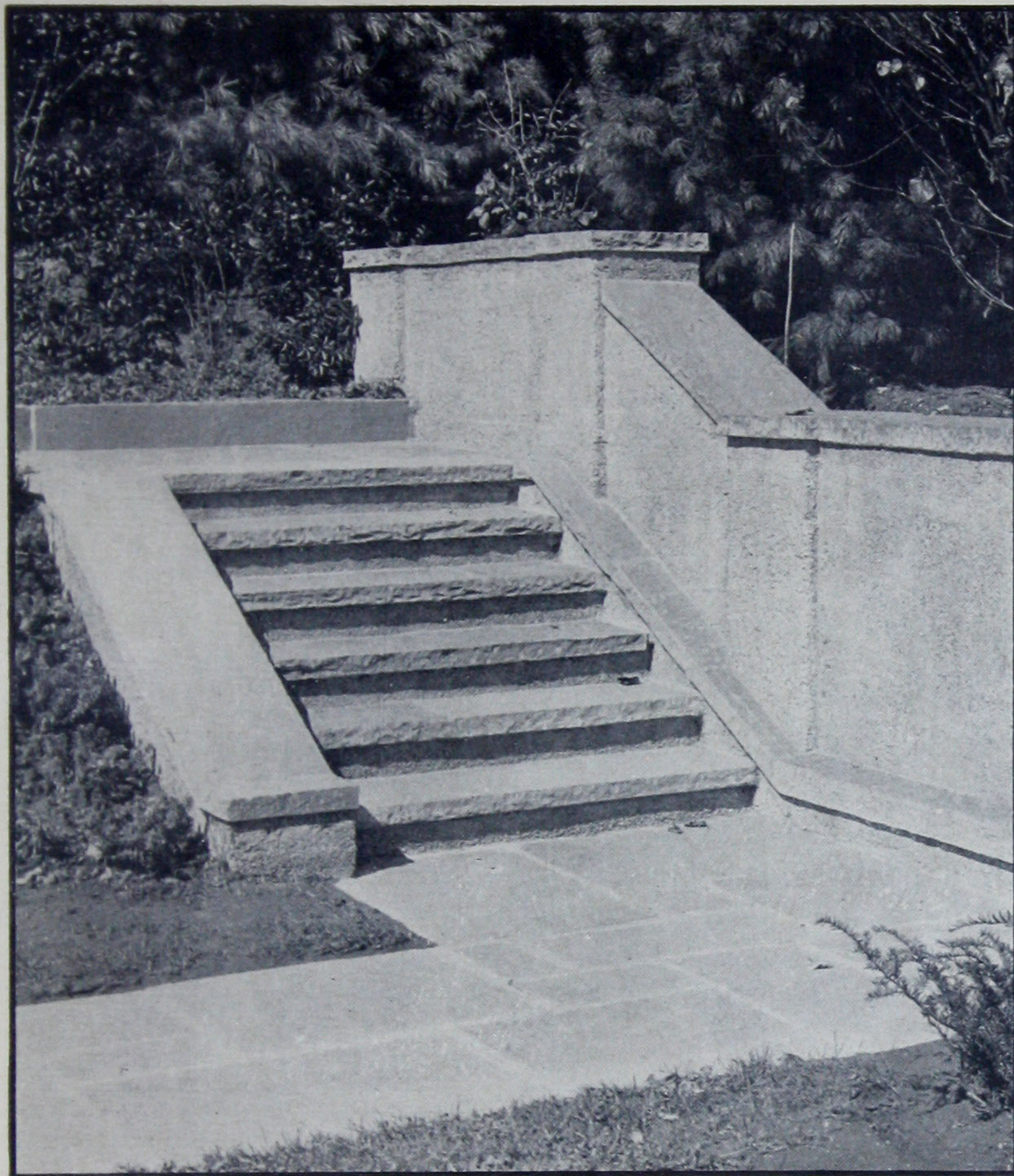
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Textured Concrete—Con-Tex





Con-Tex gives to concrete surfaces the beauty inherent in the concrete itself. Color, texture and life—they are all here. On the estate of Victor Emanuel, at Manhasset, on Long Island, A. F. Brinckerhoff, Landscape Architect, used Con-Tex for giving character to the concrete. Contractor, The George A. Sheddon Company.





THE rough stone steps on the Victor Emanuel Estate harmonize with the color and texture of the concrete surfaced with Con-Tex. A. F. Brinckerhoff, Architect; George A. Sheddon Company, Contractor.

## Producing Texture and Color In Concrete

**Washed Surfaces** Washed or scrubbed concrete surfaces, often called "exposed aggregate surfaces," have been known, used and admired for many years.

Grosvenor Atterbury achieved most charming results with this treatment on an extensive scale at Forest Hills, Long Island; and John J. Earley, of Washington, D. C., has carried the art to heights formerly thought unattainable.

Many practical problems arose in the production of such washed surfaces. Among them was the necessity for removing the forms and brushing the surface at just the right point in the hardening process of the concrete.

Since the rate of hardening is dependent upon the brand of portland cement, and upon the temperature of the air, the water and the aggregate, upon the amount of water, the time of mixing and the proportions of the mix, the exact and proper time for this scrubbing treatment was almost impossible to forecast.

Further, if the concrete is washed and scrubbed while too soft, pebbles are torn out, with consequent unsightliness

—while if the concrete becomes too hard, the labor cost of finishing mounts rapidly, with final resort all too often to muriatic acid as an "eating away" agent at a further added cost.

The above difficulties in surface finishing of concrete are done away with by the use of Con-Tex, invented and developed by Nathan C. Johnson, of Hool & Johnson, Engineers, New York.

**What Con-Tex is** Con-Tex is a quick-drying liquid, applied to forms or to the surface of fresh concrete. It prevents the setting of the cement in the surface to a predetermined depth, depending upon the "grade" or strength used. After the interior of the concrete mass has hardened in the normal manner, this sand-like, unset surface is readily removed by brushing off, thus exposing the stone either for bond or appearance. Con-Tex has no continuing action; and will not affect old concrete.

Con-Tex, then, accomplishes one purpose—it delays the hardening of the cement at the surface and to a pre-





Concrete foundations treated with Con-Tex make an attractive start for a beautiful home. Illustration shows the Englewood, New Jersey, home of Maxwell M. Upson. Architects, Frohman, Robb and Little; Contractor, K. B. C. Smith.

determined depth only, thereby making possible the economical surfacing of commercial concrete, either for beauty or for strictly utilitarian purposes.

**Con-Tex No Substitute for Craftsmanship** Con-Tex is not a substitute for skill or for workmanship in making concrete. If the aggregate is not distributed uniformly, if there are muck streaks, if the stone has been pushed back from the surface by spading, if there are diagonal pour lines, the result will not be all that may be desired. But if these errors are avoided and skill is used in the placing of concrete, Con-Tex will be found to always do its part fully and to the advantage of any construction in concrete.

To those who do require that concrete shall be uniform, who appreciate the value of creating things really worth while, and delight in texture and color, Standard Con-Tex for revealed architectural surfaces is offered with pleasure as well as assurance, for through Standard Con-Tex, concrete becomes to them a material of new and of boundless values as well as of unlimited constructional opportunity.

And for all purposes, whether or not craftsmanship is used in the making of concrete, *Bonding* Con-Tex is recommended for providing a rough surface of clean, exposed stone.

To this surface any plastic material will bond; and to this surface without metal or other ties can be applied brick or stone, or stucco. These and all other veneering materials will adhere permanently and solidly to Con-Texed surfaces of concrete without any bonding means beyond the cement mortar backing usual to brick or stone work, or the adhesive qualities inherent in stucco itself.

**Revealed Surfaces More Weather Resistant** Many have thought a dense cement surface the best protection for concrete. In reality this is not so, but on the contrary, the cement surface acts as a "blotter" which both absorbs water and also forces it into the body of the mass by an actual pressure of many atmospheres. This skin absorption is not a mere drinking up, but is known to be a pressure which may reach hundreds of pounds per square inch, with corresponding damage to the concrete as a whole.

By doing away with this highly-absorbent skin and revealing the non-absorbent aggregate behind it with Con-Tex, the absorptive (mortar) area is cut down as much as 85%, this percentage being the average area in revealed surfaces that is made up of impervious sand and stone. Through this simple operation, then, greater permanence as well as beauty are obtained by surfacing with Con-Tex.





Just under the surface of the usual concrete surface there is color, texture and permanence. Con-Text assisted in removing the surface of this driveway for Mr. Roger Whiteford, at Chevy Chase, Maryland, and in adding considerably to its beauty.

**Grades of Con-Text** Standard Con-Text comes in five grades, "A", "B", "C", "D" and "E". "A" gives the lightest reveal, and "E" is the heaviest. The depth of action of "A" is about  $\frac{1}{16}$ " and that of "E" is about  $\frac{1}{2}$ ". The depth of reveal is based on a concrete mixed one part of cement, two parts of sand and four parts of stone.

As Con-Text reacts only with the cement in the concrete, the depth of reveal with any grade of Con-Text depends upon the amount of cement present. If the concrete is richer than 1 : 2 : 4, then the amount of action for the same grade of Con-Text will be less; and in case the concrete is leaner, the reveal will be deeper.

Based on the usual cement content of 1 : 2 : 4 concrete, the following table may be referred to in specifying and ordering Standard Con-Text.

For Fine Surface Molds of Metal, Wood, etc.

Grade A gives about  $\frac{1}{16}$ " reveal—used only for grits and like size of stone.

Grade B gives about  $\frac{3}{32}$ " reveal—used with grits to stone of  $\frac{1}{4}$ " in size.

For Wood Forms or Metal Forms in Field Use.

Grade C gives about  $\frac{3}{16}$ " reveal—used with stone  $\frac{3}{8}$ " to  $\frac{3}{4}$ " in size.

Grade D gives about  $\frac{5}{16}$ " reveal—used with stone  $\frac{1}{2}$ " to  $1\frac{1}{2}$ " in size.

Grade E gives about  $\frac{1}{2}$ " reveal—used with stone  $\frac{3}{4}$ " and larger stone.

Standard Con-Text\* is a reddish colored, quick-drying paint-like liquid, non-acid and non-poisonous. It is applied to all parts of the forms where the Con-Text action is required.

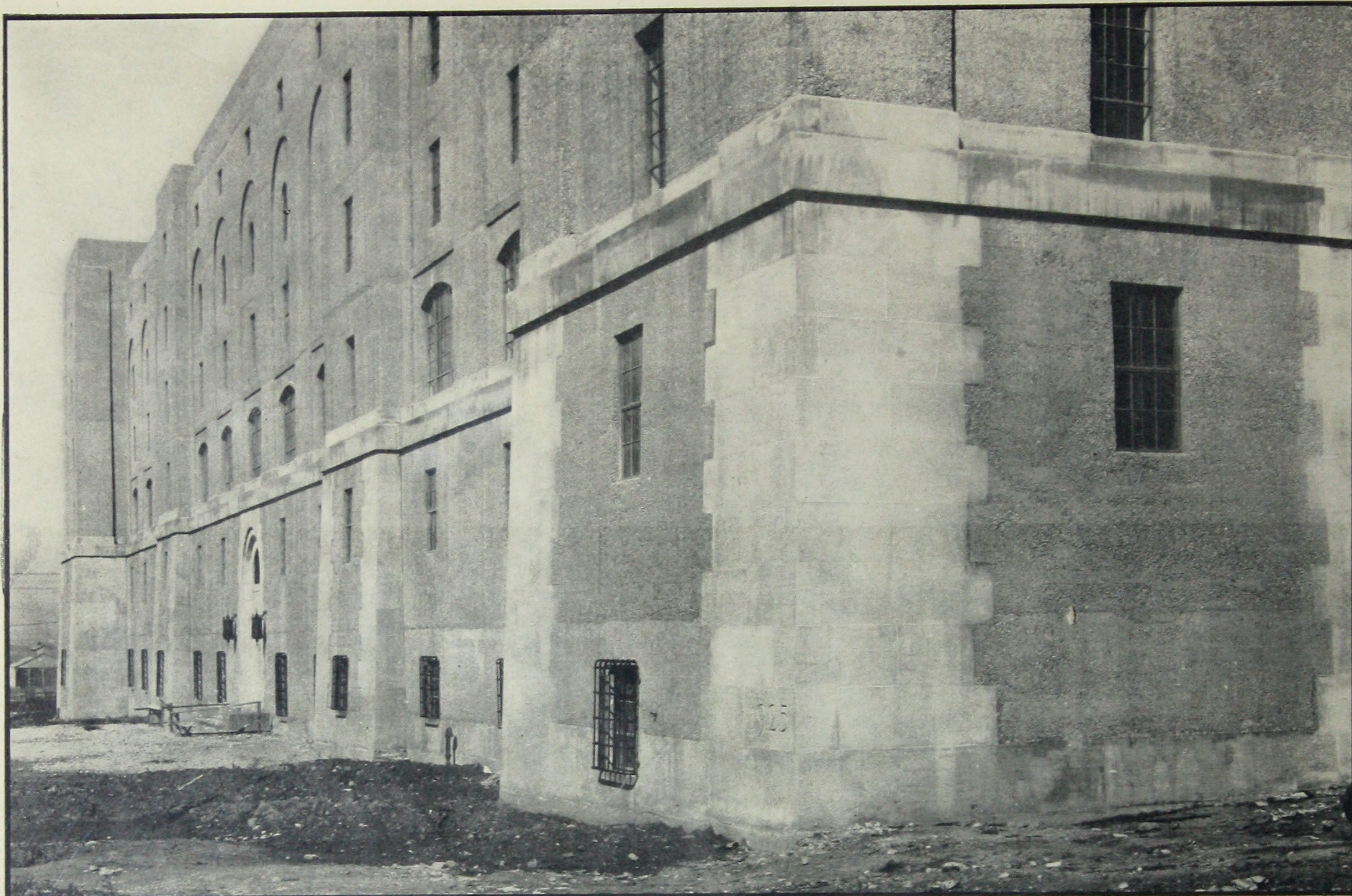
**How Con-Text is Used** On opening the Con-Text can, the contents should be thoroughly stirred. In cold weather, heating the can in hot water is recommended. (Do not expose to open fire as it is inflammable.)

This being done, Con-Text is applied as follows:—If Grade "A" or Grade "B" is used, always apply two coats the first time the forms are used if they are made of wood. After the first use, only one coat is needed each time the forms are used again. On metal forms one coat only is required for the first use and for each use thereafter.

When grades "C", "D" or "E" are used, only one coat is needed the first time for wood forms unless they are so absorbent that a priming coat is needed. In that case prime the forms with a coat of the same grade. Only one coat is

(\*) For other types of Con-Text see last page.





Surface texture of concrete can be controlled first by the size of coarse aggregate, and second by the grade of Con-Tex used. On the New York State Arsenal illustrated, a rather deep reveal was given a large sized gravel, contrasting well with the limestone trim. State Architect, Sullivan W. Jones; Contractor, Rosenthal Engineering Contracting Company.

ever needed on metal forms. The use of a priming coat will not give a deeper reveal.

A full flow-coat *but not a sloppy coat*, is applied with a flat bristle brush. Con-Tex acts like shellac under the brush and should not be gone over and over, as rebrushing will pick up the material already applied and make it too thick in spots. Too thick a coat of Con-Tex will spoil the Con-Tex action and make the skin surface of concrete very dense and hard.

A properly applied coating will dry in a short time, about an hour or so at most. As soon as the Con-Tex is dry the concrete can be poured, either immediately, or at any convenient time afterward, even several days later, as Con-Tex when dry is practically waterproof and is not affected by normal weather conditions. If, however, there is to be an interval of several days before use, it is preferable to shield the forms with building paper or canvas as a precaution against heavy rains or to prevent snow and ice from collecting on the forms.

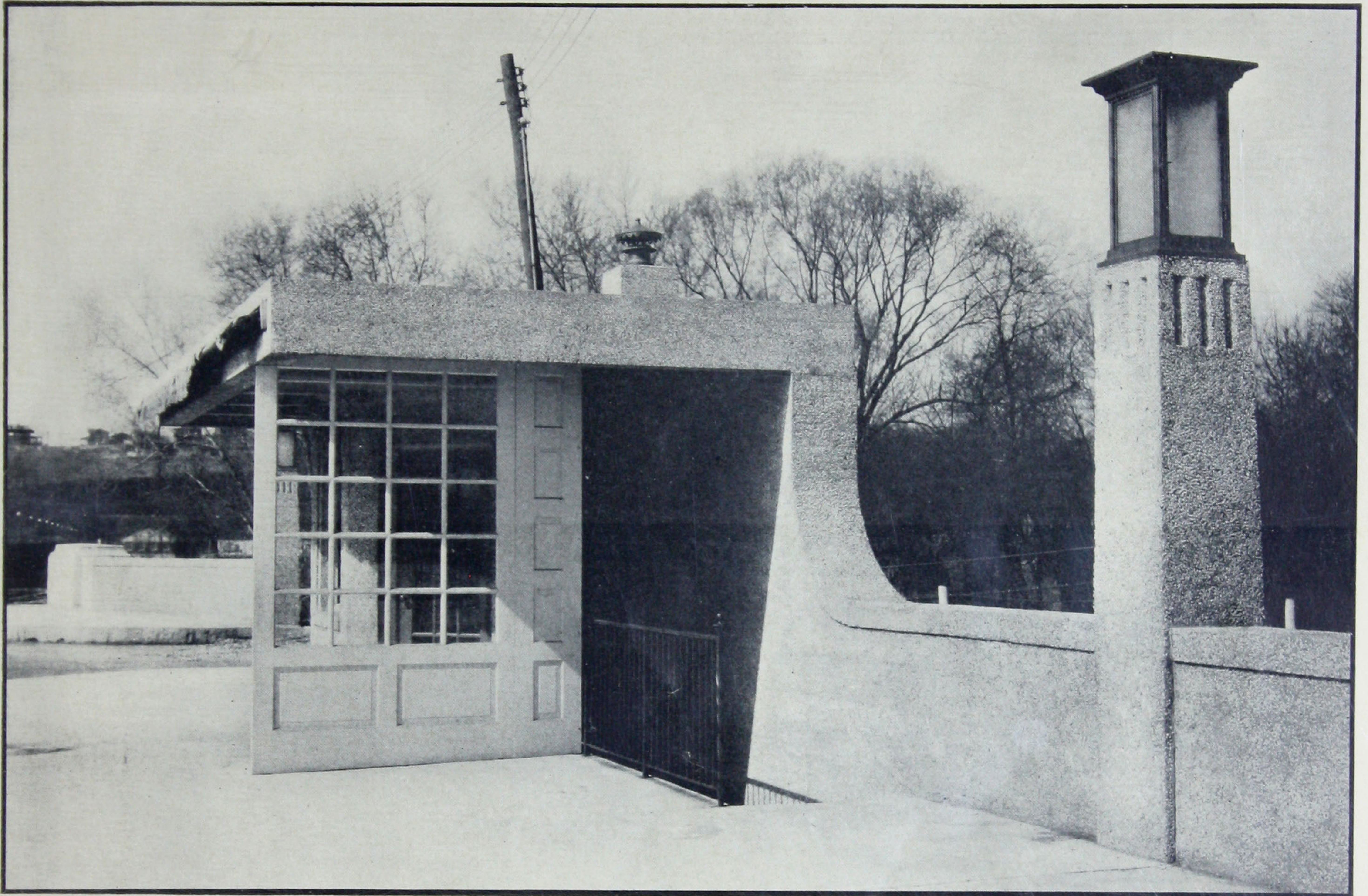
After the Con-Tex is brushed on the forms and the concrete is poured, the forms are allowed to remain in place the normal length of time. The forms are then stripped. The surface of the concrete to the desired depth will be found soft while the interior has hardened in the ordinary way. The unset material on the concrete is immediately

brushed off, as the action of the Con-Tex is not to prevent absolutely and for all time the set of the affected layer of cement but to materially delay it. If the brushing is not done immediately the unset material starts to harden; and after exposure to air and moisture becomes in time as hard as the balance of the concrete. This is a most valuable property, belonging only to Con-Tex, as by no possibility can any material not brushed off fail to harden in time.

For the brushing-down operation, two kinds of wire brushes are required, one heavy, with flat steel wires (usually called a "butchers' block" brush) and the other of finer round wire. The heavy brush is used first, like a plane, but with only enough pressure to take off the loosened outer skin. Finish is secured with the fine brush, using it evenly and to the desired reveal. When all brushing is completed, *but not before*, the surface should be flushed down with plenty of water to clean the face of the stone and to bring out their full color.

If forms are to be used again, they should be cleaned by brooming with wire brooms immediately after stripping, while any material adhering to them is still soft. Forms should always be free of all old concrete before re-use or re-coating with Con-Tex, as old concrete tends to make Con-Tex soluble and it then may be washed away by rains, or at least, its value and action impaired.





If a fine texture on the concrete surface is desired this may easily be obtained by using a small sized coarse aggregate as was done at Harrisburg on the approaches to Forsters Island Bridge. Central Construction Company, Contractor.

Occasionally, after long standing, forms will warp and open up enough to admit air to the concrete, so that re-hardening of surfaces goes on for some time while forms are still in place. If any such hardened spots are found on the concrete after stripping and the flat-wire brush will not readily clean them, go over the hardened surfaces with a steel scraper held at an angle to the wall. This will break up the partially hardened skin so that brushes will easily do the rest.

*Some Uses for Con-Tex* By the use of Standard Con-Tex, then, Portland cement concrete becomes a suitable material for hundreds of purposes from which it has hitherto been barred by reason of the unattractive surface usually obtained and the high cost of surface treatments other than Con-Tex.

Retaining Walls of Concrete—so frequent in connection with railroad and highway work—can thus be made attractive features of the landscape by means of Con-Tex. The commonly drab surface can readily be given interesting variety and artistic effects by using Con-Tex for ornamental textured panels.

Concrete Bridges, whether large or small, offer splendid opportunity for decorative treatment by the Con-Tex process, on piers, arches, spandrels, balustrades, copings, cornices, roadways and other portions.

Above-grade Foundation Walls of residences as well as of larger buildings can be made architecturally pleasing by using Con-Tex.

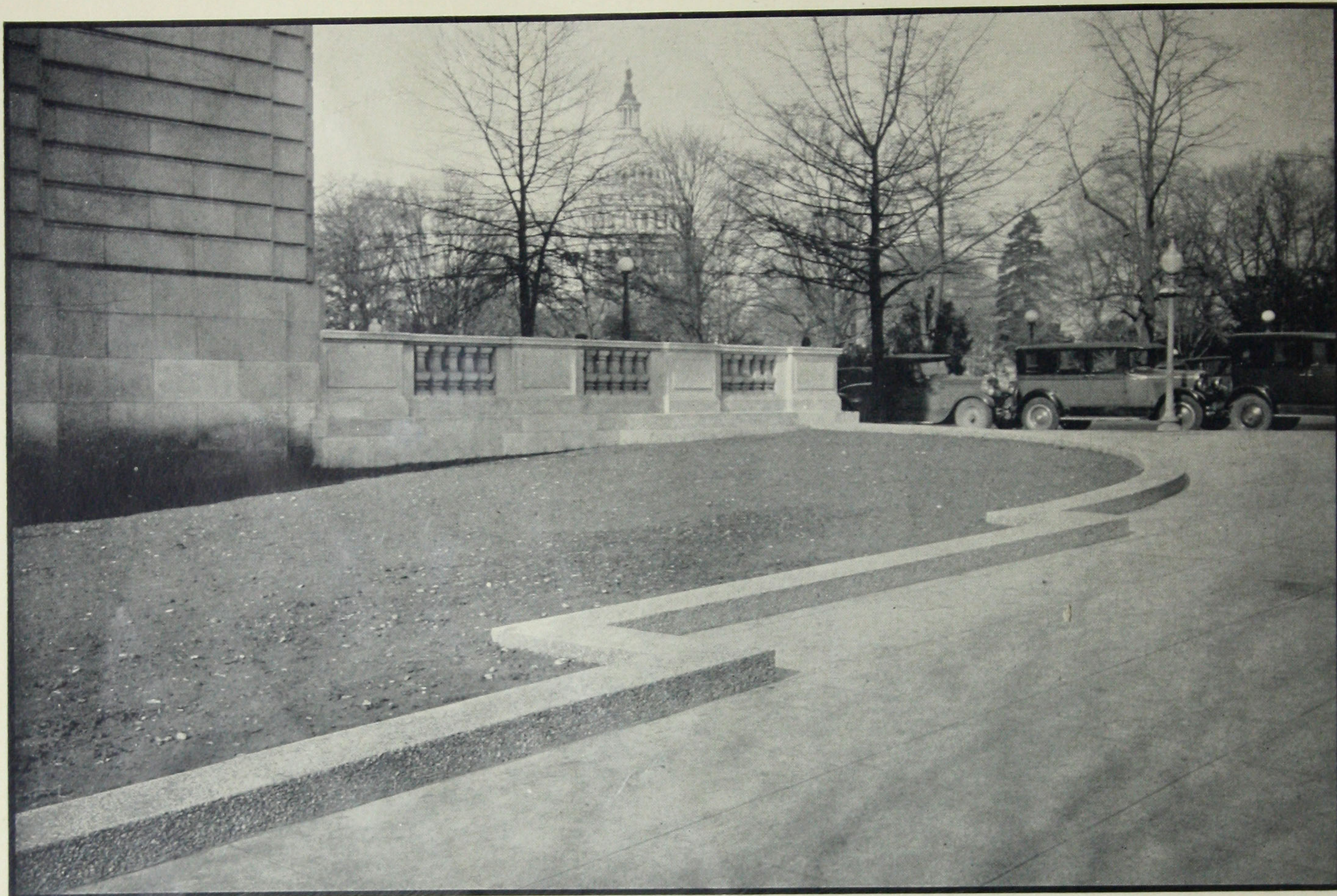
For ceilings of concrete, there are great advantages in treatment with Con-Tex. By using a mixture of proper sized aggregate, treated with Con-Tex, a textured ceiling may be secured which needs no plastering. Yet such ceilings can be plastered at any time because the revealed aggregates afford a perfect bond for any plastic material.

In Railway Terminals, Subway and Tunnel stations, and the like, treating walls and ceilings with Con-Tex achieves a two-fold result; it gives a pleasing and permanent textured surface; and it safeguards against surface disfigurement at the hands of vandals.

By using Con-Tex, concrete pre-cast on the job with an artistic textured surface, can be had with the minimum of cost. Facing stones, copings, balustrades, window and door sills, lintels and the like in endless variety may be readily made by common labor and where desired, with colored aggregates to give any color or blend of colors that may be wanted.

The entire process of producing finished, artificial stone units in this way comprises simply coating the forms with





At the east end of the House of Representatives Office Building, Washington, D. C., the curbing illustrated was built of concrete and surfaced with both Standard Con-Tex for forms and Top Surface Con-Tex. Contractor, Fred Drew Company.

Con-Tex of the proper grade, casting the units, and brushing them off after they have set and hardened. Face-down work of this character is particularly easy and particularly rich in possibilities, for face-down work insures a maximum of stone at the surface.

Those interested in obtaining particular architectural effects are invited to consult our Technical Department. The benefit of our experience may be had for the asking.

**Cost of Con-Tex Surfacing** The cost of any Con-Tex treatment may be divided in two main parts, labor costs and material costs. The cost of the Con-Tex itself is about 4 to 6c. per sq. ft. The labor cost of applying Con-Tex to the forms plus brushing off the surface after removing forms averages less than 1c. per square foot.

The cost of the Con-Tex treatment itself will thus run about 5c. to 7c. per square foot including the cost of the material, the cost of application and the cost of brushing off the concrete surface. To this add what may be necessary to cover the care required to secure uniform concrete and any necessary protection to the Con-Tex during the pouring of the concrete as outlined on page 10.

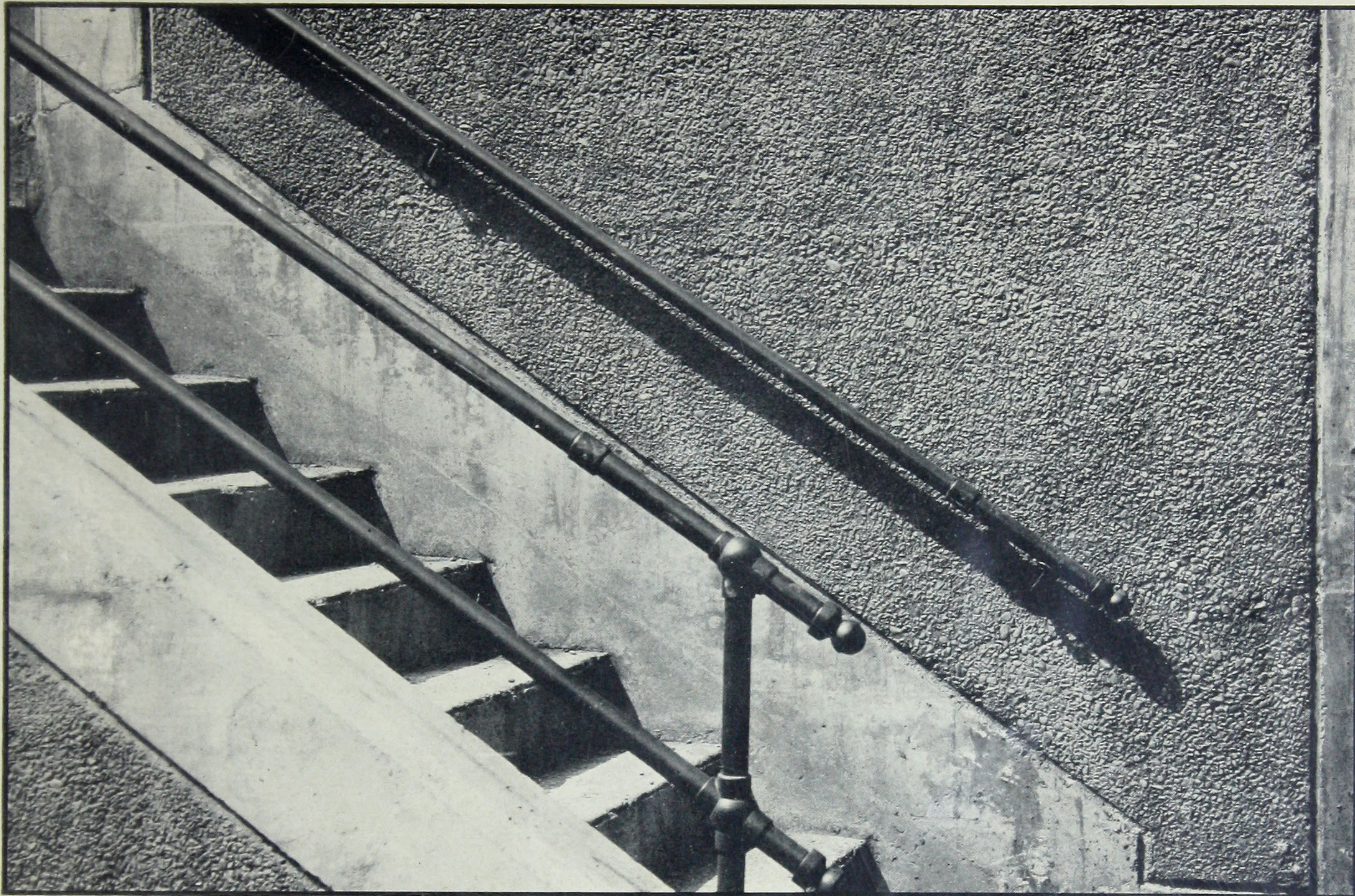
A gallon of Standard Con-Tex will cover approximately

160 to 180 square feet of forms for one application, either originally or for each reuse. If a priming coat is necessary, the coverage will be about 100 square feet per gallon for the two coats, and 160 to 200 square feet on each reuse. We cannot recommend any priming coat other than Con-Tex.

Con-Tex itself does not color concrete. But it makes possible the use of color materials in great variety and with most artistic effects. For instance, the ornamental possibilities of colored aggregates have long been known but have not heretofore been available in their full value, because bush-hammering or point-tooling destroyed or impaired them. Now, by the Con-Tex process, aggregates of ornamental value can be used and later revealed in all their natural beauty. Or, an aggregate can be used for a color which, when revealed by Con-Tex—contrasts agreeably with the color of set cement. Coloring pigments may further be added to the cement mixture to contrast with the aggregate. Especially pleasing effects can be had by using white Portland cement and colored aggregates.

Line and form, even at arrisses, are not only preserved but emphasized by using Con-Tex. Texture, the light-and-shadow effects, are coincidentally added by the Con-Tex process; and contrasts in texture, as well as emphasis in shading, can be secured by using different grades of Con-Tex on adjoining surfaces.





The work illustrated is on the approach to the Foote Avenue Viaduct of the Erie Railroad, at Jamestown, New York. Arthur McMullen Company, Contractor; Graham King, Architect.

Panelling and other ornamental effects are easily obtained by attaching to the form a bevelled or half round moulding that outlines the area to be textured. This not only gives sharp arrisses but also emphasizes the architectural lines by forming a heavy border shadow.

**Top Surface Work** Often in exposing the aggregate in the concrete there are parts, such as copings, where no forms are used. Since Standard Con-Tex forms a hard, resistant film on drying, which would make its removal difficult, it is not intended for this top surface use, but another type of Con-Tex called Top-Surface Con-Tex is made for such work, as it does not form this hard Con-Tex film, so that its removal in brushing-off is easy.

This type of Con-Tex is brushed directly on the concrete surface before it has taken its final set. The proper time to apply it is just as soon as applying can be done without the brush picking up the mortar surface of the concrete.

After this treatment with Top-Surface Con-Tex, the concrete is allowed to harden from 24 to 48 hours and then the concrete is brushed for reveal as described on page 6.

Top-Surface Con-Tex is *not* waterproof so that it cannot be used on forms; and concrete that has been treated with it must be protected against rain until the concrete has been brushed.

Five grades of Top-Surface Con-Tex are made, similar in depth of cut to Standard Con-Tex.

#### **Hints on Concreting**

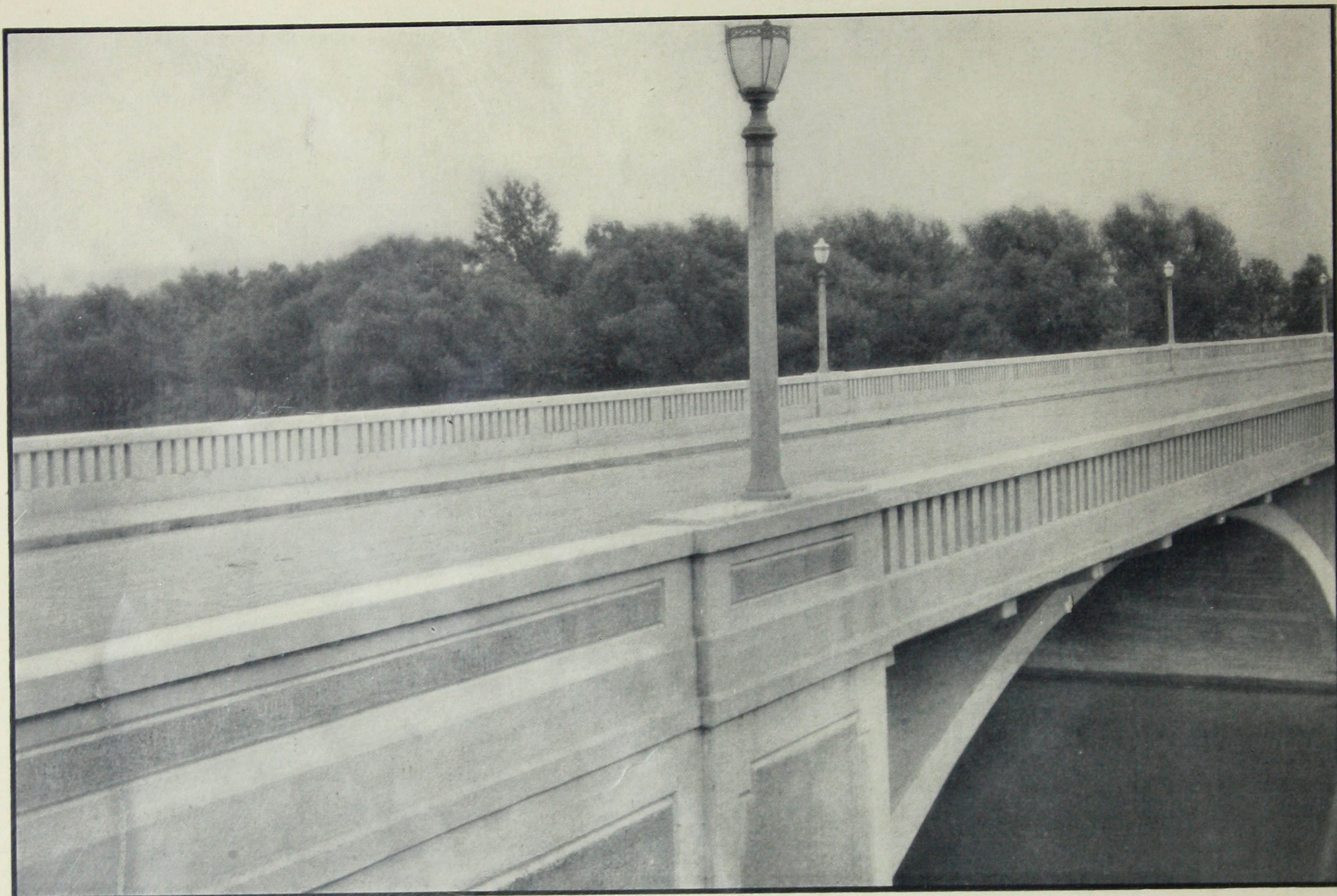
There are very few precautions to be observed in work with Con-Tex which are essential in any concrete work where quality and uniformity are first considerations. Some of the more important of these follow.

1—The most pleasing surface textures can only be had with a uniform concrete. One sized coarse aggregate is of great assistance in obtaining uniformity, since it has much less tendency to segregate than has graded material. Some degree of assistance against segregation can also be had by the addition of finely divided silicious powder to the concrete—about 3% by weight of the Portland cement.

2—Spading the stone back from the forms pushes it away from the surface leaving nothing but sand particles to reveal and may also scrape the Con-Tex off the form. Puddling in the center of the concrete is therefore recommended and spading must be avoided.

3—Plastic consistencies work better than sloppy or very dry mixes and are to be recommended for any concrete work, but particularly where a pleasing revealed surface is desired. If the consistency is too sloppy, muck will appear at the top





The dignity and sweep of the concrete arch bridge is greatly augmented by panelling. When in the panelling you can provide texture and color, the result is even more pleasing. Illustration shows the Mishawaka Avenue Bridge at Mishawaka, Indiana. Designing Engineer, Daniel B. Luten; Builder, National Concrete Company; County Engineer, Charles W. Cole.

of the concrete while pouring, and find lodgement at low spots, to the detriment of the finished structure. In such cases, coarse aggregate should be puddled in until the lift is choked with stone. This insures a more even distribution and the absence of muck streaks when the forms come down.

4—In order that the color of concrete may be uniform, it is well to use cement from a single source, sand from a single source and stone from a single source throughout any one job.

5—Nothing disfigures a revealed surface more than diagonal pour lines. This can be prevented through bulkheading at such intervals that an entire section may be concreted to full height in one operation. Under any conditions, pour lines should be kept horizontal.

6—A great help in preventing segregation and any unevenness in distribution of the concrete is rapid filling of the forms. Constantly adding batches keeps the mass agitated and acts in the same manner as thorough puddling.

7—When the space between forms is narrow or the pours are deep, there is liable to be considerable splash on the forms and the reinforcement. If splash dries on the form, it holds back the stone from the surface, resulting in an uneven reveal. This may be overcome by the use of waterproofed canvas or iron tubes leading from a hopper, or pan, above the forms.

Shorter lengths of tubing may be quickly attached as the form is filled.

It is well under all circumstances to provide a baffle for preventing the concrete from abrading the Con-Texed surface at the time deposited. Other methods for preventing splash include provision in deep pours for placing the concrete through traps at intervals in the forms. These traps are closed as the concreting progresses.

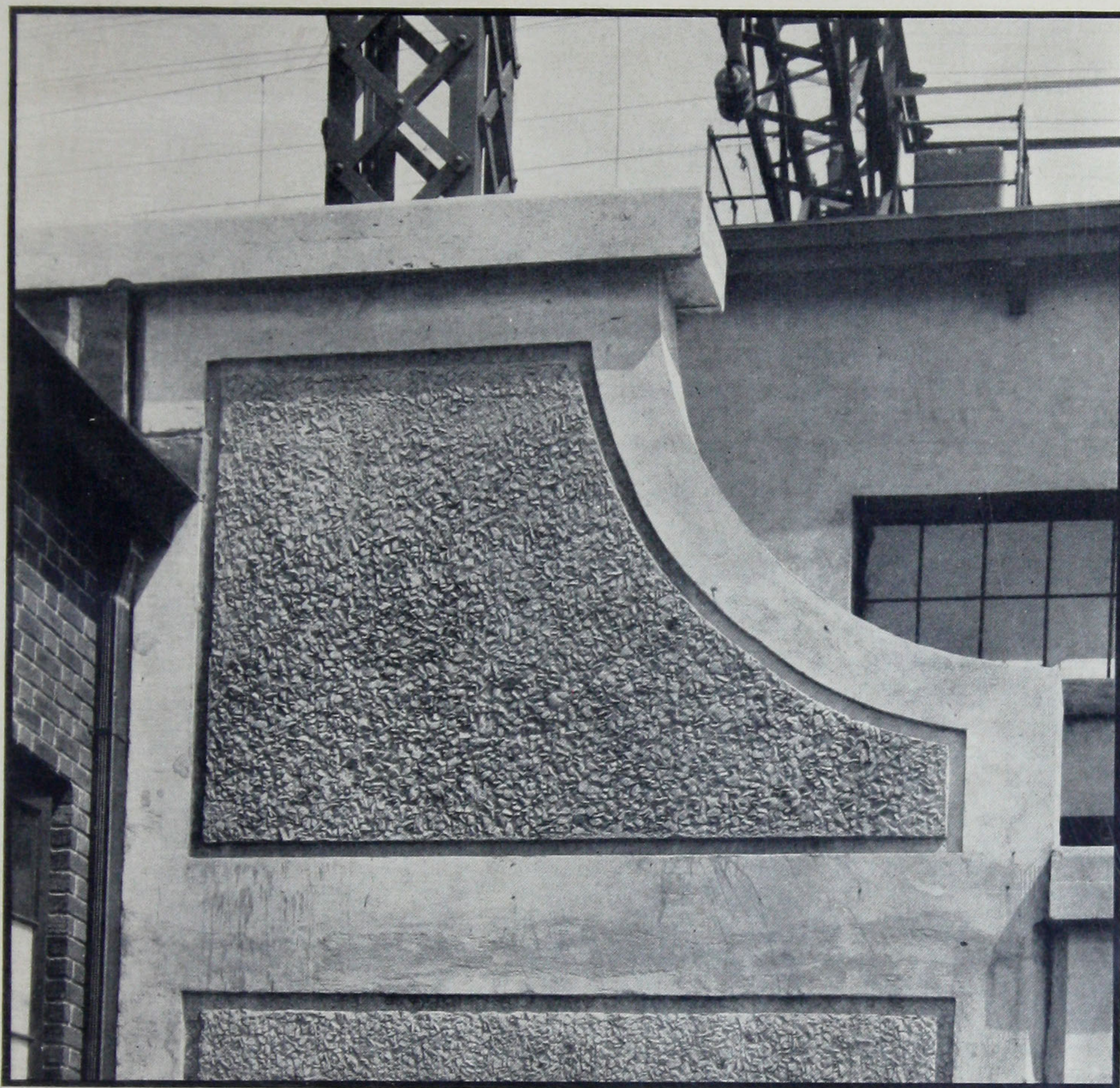
8—Samples of good size are often worth making before proceeding with the actual work. Such samples provide a great deal of experience in a very short time, furnish a definite idea of what the finished surface is like and the method of securing it, and help to insure a pleasing result on the finished structure.

#### *How to Specify by Name*

It is best always to specify Standard Con-Tex by name. The following form is commonly used.

"All surfaces of form-cast concrete, whether pre-cast or cast in place, indicated on the plans or in the specifications, or otherwise designated to be surface finished, shall obtain this finished surface by the use of Standard Con-Tex as made and supplied by the Concrete Surface Corporation, 342 Madison Avenue, New York City.





PANELLING is easily accomplished without resort to expensive form work by tacking wood strips of the desired width at the border lines. Illustration shows a panel at Larchmont Gardens, New York, for the New York, Westchester and Boston R. R. Dwight P. Robinson & Company, Constructors.

"The grade of Standard Con-Tex used shall be suited to the reveal desired by the Architect and specified by him, or marked on the plans.

"The Standard Con-Tex shall be used and applied in the following manner.

"All surfaces, or forms for surfaces that are specified to be textured concrete obtained by exposing aggregates, shall be given an even coat or coats of Con-Tex, taking care to completely cover all areas. Forms shall be clean and dry.

"Where such coatings are applied to forms, after removal of forms, the loosened surface of the concrete shall be immediately removed with wire brushes or other effective and approved means, and the concrete thoroughly washed with water and bristle brushes until a clean and even surface is obtained.

*In Public Work where Trade Names are not Permissible, this Form is Commonly Used*

surface finished by the use of a liquid material painted on the forms before placing concrete, or on the concrete where so directed, to obtain a revealed aggregate surface.

"All cast-concrete surfaces indicated on the plans or in the specifications, or otherwise designated to be surfaced or surface-finished shall be sur-

"The material used to produce this surface finish shall be an approved liquid coating applied to the forms, or in top surface work, applied to the concrete, before it has set and this approved coating shall meet the following requirements: It shall be composed of a colloidal base carrying active material which latter shall operate only after coming in contact with the alkaline fluids of the concrete. This coating liquid shall not contain free acid; shall not contain any ingredient that will injure the aggregate, the reinforcements or the forms; shall dry quickly, and there shall be no after effects injurious to the concrete or to applied materials. All surfaces, or forms for surfaces that are specified to be textured concrete obtained by exposing aggregates, shall be given an even coat or coats of this liquid, taking care to completely cover all areas. All forms shall be clean and dry.

"Where such coating is applied to forms, after removal of forms, the loosened surface of the concrete shall be immediately removed with wire brushes or other effective and approved means, and the concrete then thoroughly washed with water and with bristle brushes until a clean and even surface is obtained."



# Concrete Surface Corporation Products

## The Kinds of CON-TEX and their uses

THERE IS A KIND OF CON-TEX SUITED TO



EVERY CONCRETE SURFACING NEED

### THE KINDS of CON-TEX ARE:

**Standard Con-TEX**—A hard-film Con-TEX, impervious to weather when dry and for use on forms only. Brushed in an ordinary coat on inside of forms, in advance of pouring the concrete, it gives to concrete surfaces a finish of exposed aggregate, very attractive and as permanent as rock. Made in five grades, depending on the depth of reveal desired. Shipped in one gallon cans only. Covering capacity, first use of forms requiring two applications, 140 square feet per gallon. Each re-use, approximately 175-200 square feet per gallon, and one application only required.

**Top Surface Con-TEX**—A soft-film Con-TEX for use on top surfaces of concrete. Applied directly to the concrete *before final set*, it gives to concrete an attractive finish of exposed aggregate, free from scaling or cracking. One application only is required. Made in five grades depending on the depth of reveal desired. Shipped in 5 gallon pails and/or in one gallon cans as preferred. Covering capacity approximately 180-200 square feet per gallon. One application only required.

**Bonding Con-TEX for Use on Forms**—A hard-film Con-TEX, impervious to weather when dry. Brushed on forms in advance of pouring the concrete, and gives a surface of clean sand and stone, exposed at their outer faces as a bonding surface for mortars, plasters, etc., etc., and for attaching tile, brick, cork board, etc., directly to structural concrete without the use of "bonding plasters," "bonding coats," or metal ties. Made in one grade only, giving an adequate reveal. Shipped in 5 gallon pails or in one gallon cans as preferred. Covering capacity 160 square feet per gallon. One application only is needed for each use, including the first use of forms.

**Top Surface Bonding Con-TEX**—A soft-film Con-TEX for use on top of surfaces of poured slabs. Applied directly to the surface of concrete *before final set*, it gives an exposed surface of clean sand and clean stone for the bonding of floor finishes to underfloors, for bonding one lift of concrete to another; for bonding of column bases to footings; bonding of bituminous or asphaltic toppings to concrete, so that they will not "wave," or slide, and for all like top-surface bonding uses. Made in one grade only, cutting about  $\frac{3}{8}$ ". One application only is required. Brushed directly onto the surface of the concrete. Covering capacity approximately 180-200 square feet per gallon. Shipped in 5 gallon pails and one gallon cans.

**Stucco Con-TEX**—A soft-film Con-TEX for exposed aggregate work on stucco so that stucco may have a permanent color (the color of the aggregates used) and a slight texture. Applied directly to the surface of the stucco by brushing on *before final set*. Gives a reveal of about  $\frac{1}{32}$ ". Covering capacity about 200 square feet per gallon. Shipped in gallon cans only.

**Curex**—A full-bodied, creamy liquid, almost colorless, that prevents the usual crazing, cracking, dusting and scaling of all types of concrete surfaces but gives no reveal. Curex is brushed directly on the concrete after finishing. Curex makes unnecessary wetting-down, surface covering or other treatment for concrete surfaces, such as roadways, sidewalks, floors, stucco, cement plasters, concrete products, etc. Shipped only in 5 gallon pails. Covering capacity approximately 180-200 square feet per gallon.

Ask for circular covering product or products in which you are interested, with illustrations of their use.

*The designation "hard-film Con-TEX" and "soft-film Con-TEX" refer to the character of the Con-TEX film itself, not to the concrete.*

CONCRETE SURFACE CORPORATION, 342 MADISON AVE., NEW YORK

Con-TEX is licensed under the product and process patent rights of Nathan C. Johnson, in U. S. A. and abroad. Other products, process and combination patents applied for.



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